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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/667,825	09/22/2003	Giuseppe Pedretti	8245.060	1009
30589	7590	02/08/2005	EXAMINER	
DUNLAP, CODDING & ROGERS P.C. PO BOX 16370 OKLAHOMA CITY, OK 73113			PHAN, THIEM D	
			ART UNIT	PAPER NUMBER
			3729	

DATE MAILED: 02/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/667,825	PEDRETTI ET AL.	
	Examiner	Art Unit	
	Tim Phan	3729	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) 13-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 25-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5/26/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicants' election without traverse of group I, Claims 1-12 and 25-35, filed on 12/28/04, is acknowledged.

The Restriction mailed on 12/3/04 has been carefully reviewed and is held to be proper. Moreover Applicants did not distinctly and specifically point out any error in the Restriction Requirement. Accordingly, Claims 13-24 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Group, there being no allowable generic or linking claim.

The Restriction filed on 12/3/04 is hereby **made Final**.

Applicants are required to cancel these nonelected claims (13-24) or take other appropriate action.

An Office Action on the merits of Claims 1-12 and 25-35 now follows.

Title

2. The following title is suggested: "Process for Manufacturing Printed Circuit Boards with Thick Copper Power Circuitry".

Abstract

3. Applicants are reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the **range of 50 to 150 words**. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Currently, the Abstract has 240 words. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The language: "the bonding of the conductor core to conductor core" (Cf. Claim 5) is confused and unclear.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 2, 7, 25, 26 and 31 are rejected under 35 U.S.C. 102(e) as being anticipated by Patel et al (6,623,651 B2) hereinafter '651.

As applied to claims 1 and 25, the '651 teaches a method for making circuit board, comprising:

- forming a conductor core (Cf. Fig. 1B, 20) containing a thin base (Cf. Fig. 1B, 18) of electrically conductive material and areas of thick conductive material (Cf. Fig. 1B, 15) in a predetermined pattern;
- bonding the conductor core to a sublayer (Cf. Fig. 1C, 22) of electrically insulating material to create a flat laminate, wherein the areas of thick conductive material (Cf. Fig. 1C, 15) are positioned adjacent to the sublayer (Cf. Fig. 1C, 22); and,
- forming predetermined printed circuits (Cf. Fig. 1G, 48) by/and removing conductive material (Cf. Fig. 1F, elements 44d-44f) from the flat laminate (Cf. Fig. 1F, 22) that does not comprise said predetermined printed circuits (Cf. Fig. 1E, 40) to form the predetermined printed circuits (Cf. Fig. 1G, 48).

As applied to claims 2 and 26, the '651 teaches that the conductor core (Cf. Fig. 1B) and predetermined printed circuits (Cf. Fig. 1G, 48) comprise copper.

As applied to claims 7 and 31, the '651 teaches that the removing of conductive material is accomplished through chemical etching or etchant material by a conventional etching process (Cf. Fig. 1F, 44d-44h; col. 4, line 30; col. 3, line 54).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over the '651.

As applied to claim 8, the '651 teaches a method for making circuit board, including the etching process (Cf. Col. 4, line 30) of the conductive areas to form predetermined areas (Cf. Fig. 1G, 48) of the PCB, which reads on Applicants' claimed invention except for describing a solder mask coating.

It would be obvious to one of ordinary skill in the art at the time the invention was made to apply a solder mask coating in order to accomplish an etching process.

10. Claims 3-6, 9-12, 27-30 and 32-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over the '651 in view of Bokisa (US 5,928,790) hereinafter '790 or vice versa.

As applied to claims 3 and 27, the '651 teaches a method for making circuit board, including the formation of conductor core with thick and thin conductive base areas, which reads on Applicants' claimed invention except for depositing a conductive base area upon another one in order to thicken it.

The '790 teaches a process of making multilayer circuit boards with a step of depositing a conductive layer on another circuitry layer (Cf. Col. 5, lines 61 ff.) for thickness and accuracy.

It would be obvious to one of ordinary skill in the art at the time the invention was made to combine the two teachings, by applying the deposition process as taught by the '790 to thicken the conductor base area of the '651, for better accuracy.

As applied to claims 4 and 28, the '651 teaches a method for making circuit board, including the formation of a sublayer (Cf. Fig. 1C, 22) of electrically insulating material, which reads on Applicants' claimed invention except for the sublayer of electrically insulating material that comprises sheets of glass fiber reinforced with resin that is dried but not cured or prepreg, which is well known in this art.

The '790 teaches a process of making multilayer circuit boards with a partially cured prepreg as non-conductive layer (Cf. Col. 1, lines 13 ff.) in a multilayer board, which is old art.

It would be obvious to apply a prepreg as non-conductive layer in a multilayer circuit in order to isolate the circuitry.

As applied to claim 5, as best understood, the '651 teaches the bonding of the conductor core (Cf. Fig. 1C, 15) to the sublayer (Cf. Fig. 1C, 22).

As applied to claims 6, 29 and 30, the '790 teaches the timely heating and pressure exerted on the prepreg for bonding (Cf. Col. 1, lines 14 ff.) to the conductor core, which is also old in this art.

As applied to claims 9-12 and 32-35, the '651 and '790 teach a process of making multilayer circuit board, including the conductor circuitry thickness about four one-thousandths of an inch (Cf. '651, col. 3, line 48) or 2 to 4 microns (Cf. '790, col. 5, lines 32 ff.) except for assigning multiple different thickness ranges for the conductor traces.

It is mere matter of design choice to assign different thickness ranges for the conductor traces and it is held that the claimed temperature ranges are not so critical as to be novel or unobvious over the thickness range recited in the '651 and '790.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tim Phan whose telephone number is 571-272-4568. The examiner can normally be reached on M - F, 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tim Phan
Examiner
Art Unit 3729


CARL J. ARBES
PRIMARY EXAMINER

tp
February 4, 2005